

AMENDMENTS TO THE CLAIMS

Please amend claims 1 and 7 and add new claims 22-32 as follows.

1. (Currently Amended) A semiconductor device comprising:

a substrate coated with an insulating layer;

a connecting part connected to a conductive layer through the insulating layer of the substrate, the connecting part having an upper surface;

a seed separating layer formed around the connecting part and the insulating layer, the seed separating layer defining an open region that exposes at least part of the connecting part, the seed separating layer having an upper surface disposed above the upper surface of the connecting part;

a seed layer disposed in and filling the open region of the seed separating layer and covering a first portion of the seed separating layer, the seed layer having an upper surface disposed above the upper surface of the seed separating layer and a lower surface that engages connecting part and that is disposed below the upper surface of the seed separating layer; and

a capacitor comprising a lower electrode formed on the seed layer, a dielectric medium formed on the lower electrode and further covering a second portion of the seed separating layer, and an upper electrode formed on the dielectric medium; and

wherein the seed layer is disposed between the connecting part and the dielectric medium of the capacitor.

2. (Cancelled)

3. (Original) The semiconductor device as claimed in claim 1, wherein the seed separating layer comprises a material having an etch selection ratio with the insulating layer.

4. (Original) The semiconductor device as claimed in claim 1, wherein the seed separating layer has a thickness of ranging from about 50Å to about 2000Å.

5. (Original) The semiconductor device as claimed in claim 1, wherein the seed layer is formed of a material selected from the group consisting of Pt, Ru, Ir, Os, W, Mo, Co, Ni, Au and Ag.

6. (Original) The semiconductor device as claimed in claim 1, wherein the seed layer has a thickness ranging from about 100Å to about 10000Å.

7. (Currently Amended) ~~The semiconductor device as claimed in claim 1,~~

A semiconductor device comprising:

a substrate coated with an insulating layer;

a connecting part connected to a conductive layer through the insulating layer of the substrate, the connecting part having an upper surface;

a seed separating layer formed around the connecting part and the insulating layer, the seed separating layer defining an open region that exposes at least part of the connecting part, the seed separating layer having an upper surface disposed above the upper surface of the connecting part;

a seed layer disposed in the open region of the seed separating layer and covering a first portion of the seed separating layer, the seed layer having an upper surface disposed above the upper surface of the seed separating layer and a lower surface that engages connecting part and that is disposed below the upper surface of the seed separating layer; and

a capacitor comprising a lower electrode formed on the seed layer, a dielectric medium formed on the lower electrode and further covering a second portion of the seed separating layer, and an upper electrode formed on the dielectric medium;

wherein the connecting part is planarized with the insulating layer.

8. (Original) The semiconductor device as claimed in claim 1, wherein the connecting part comprises a plug and a barrier layer.

9. (Original) The semiconductor device as claimed in claim 8, wherein the plug comprises at least one material selected from the group consisting of polysilicon, tungsten (W), W-silicide), TiN, TiAlN, TaSiN, TiSiN, TaN, TaAlN, TiSi and TaSi.

10. (Original) The semiconductor device as claimed in claim 8, wherein the barrier layer comprises a barrier metal layer and an oxygen diffusion barrier layer.

11. (Original) The semiconductor device as claimed in claim 10, wherein the oxygen diffusion barrier layer comprises at least one material selected from the group consisting of Ir, Ru, Pt, Re, Ni, Co and Mo.

12. (Original) The semiconductor device as claimed in claim 10, wherein the barrier metal layer comprises at least one material selected from the group consisting of TiN, TiAlN, TaSiN, TiSiN, TaN, RuTiN and RuTiO.

Claims 13-20 (cancelled).

21. (Previously Presented) The semiconductor device of claim 1 wherein the seed layer and the dielectric layer combine to cover the seed separating layer.

22. (New) The semiconductor device as claimed in claim 7, wherein the seed layer is filled into the open region, and is disposed between the connecting part and the dielectric medium.

23. (New) The semiconductor device as claimed in claim 7, wherein the seed separating layer comprises a material having an etch selection ratio with the insulating layer.

24. (New) The semiconductor device as claimed in claim 7, wherein the seed separating layer has a thickness of ranging from about 50Å to about 2000Å.

25. (New) The semiconductor device as claimed in claim 7, wherein the seed layer is formed of a material selected from the group consisting of Pt, Ru, Ir, Os, W, Mo, Co, Ni, Au and Ag.

26. (New) The semiconductor device as claimed in claim 7, wherein the seed layer has a thickness ranging from about 100Å to about 10000Å.

27. (New) The semiconductor device as claimed in claim 7, wherein the connecting part comprises a plug and a barrier layer.

28. (New) The semiconductor device as claimed in claim 27, wherein the plug comprises at least one material selected from the group consisting of polysilicon, tungsten (W), W-silicide), TiN, TiAlN, TaSiN, TiSiN, TaN, TaAlN, TiSi and TaSi.

29. (New) The semiconductor device as claimed in claim 27, wherein the barrier layer comprises a barrier metal layer and an oxygen diffusion barrier layer.

30. (New) The semiconductor device as claimed in claim 29, wherein the oxygen diffusion barrier layer comprises at least one material selected from the group consisting of Ir, Ru, Pt, Re, Ni, Co and Mo.

31. (New) The semiconductor device as claimed in claim 29, wherein the barrier metal layer comprises at least one material selected from the group consisting of TiN, TiAlN, TaSiN, TiSiN, TaN, RuTiN and RuTiO.

32. (New) The semiconductor device of claim 7 wherein the seed layer and the dielectric layer combine to cover the seed separating layer.